AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraph on page 1, lines 5-15, with the following amended paragraph:

As a method of controlling an inverter for driving the induction motor so that the induction motor is operated at variable speed, there is known a V/f fixed control method of controlling an output voltage (V1) of the inverter in proportion to a primary frequency (f1) of the inverter. This method has a problem that when a load is applied, an induced voltage (Em) of the induction motor is reduced because of a voltage drop across a primary resistance (r1) of the induction motor, so that a magnetic flux of the induction motor is made small and accordingly a maximum torque is reduced.

Please replace the paragraph spanning pages 1 and 2 with the following amended paragraph:

In order to increase a torque in a low and medium speed area, a general inverter includes torque boost function. When a large start torque is required, a boost voltage is set up to a high voltage in a low speed area and the boost voltage is added to a V/f fixed voltage command (induced voltage command Em*) to produce an output voltage command of the inverter. However, when the boost voltage is increased, over-excitation occurs in no load. When the over-excitation occurs, the magnetic flux of the induction motor is saturated and accordingly an excitation reactance is reduced to thereby increase an excitation current. Consequently, the

temperature of the induction motor rises or the current of the inverter is increased excessively, so that there is the possibility that over-current protection function or over-load protection function is operated to be tripped.

Please replace the paragraph on page 2, lines 8-16, with the following amended paragraph:

A method of suppressing the over-excitation is described in, for example, JP-A-7-163188. In this method, a command for setting up a frequency to zero is issued before start of operation and a DC current is supplied to the induction motor. An output voltage of the inverter at the time that a current of U-phase becomes equal to an equivalent of a design value of the excitation current is set up as a torque boost voltage $\Delta Vz0$ at the time that the frequency is 0 Hz.

Please replace the paragraph spanning pages 2 and 3 with the following amended paragraph:

In the above method, since a torque boost voltage is set up so that the current in no load is equal to a rated excitation current (design value of excitation current), no over-excitation occurs. In this case, however, the voltage drop across the primary resistance is increased when the induction motor is loaded. ~~and accordingly~~As a result, there is a problem that the induced voltage (magnetic flux of motor) is reduced to thereby decrease an output torque. In this manner, ~~heretofore,~~ when the torque boost voltage is made high, the torque is increased, while over-excitation occurs when the load is light. Conversely, when the torque boost voltage is made low, the

over-excitation does not occur, while there is an antithetic problem that the torque is not increased.

Please replace the paragraph on page 4, lines 7-9, with the following amended paragraph:

Fig. 1 is a block diagram schematically illustrating ~~an embodiment of~~ an inverter apparatus according to an embodiment of the present invention;

Please replace the paragraph on page 4, lines 20-24, with the following amended paragraph:

Figs. 5A and 5B are graphs showing an output voltage characteristic and an output current characteristic of ~~the~~ an inverter apparatus when a torque boost voltage is varied in no load state in the control of the present invention;

Please replace the paragraph on page 5, lines 16-24, with the following amended paragraph:

An AC power from an AC power supply 1 is converted into a DC power by means of a rectification circuit 2 and a smoothing capacitor 3. The DC power is converted into an AC variable voltage having a variable frequency by means of an inverter unit 4 to drive an induction motor 5 so that the induction motor is operated at variable speed. An output frequency and an output voltage of the inverter unit 4 are controlled by an inverter control circuit including, for example, a gate circuit 6, a V/F gain 7, a torque boost voltage commander 8, an integrator 9, a uw/dq converter 11, a

PI controller 12, a limiter processing unit 13, a primary resistance 14, a dq/uw converter 15, and a gate support generator 16, as shown in Fig. 1.

Please replace the paragraph spanning pages 5 and 6 with the following amended paragraph:

In the inverter control circuit of the embodiment, a primary frequency command $\omega 1^*$ of the inverter unit 4 is multiplied by a V/f gain 7 to produce an induced voltage command Em*. Further, a torque boost voltage commander 8 produces a torque boost voltage command ΔVz^* in accordance with the primary frequency command $\omega 1^*$. In this connection, $\Delta Vz0$ is a torque boost voltage set value. Then, the primary frequency command $\omega 1^*$ is integrated by an integrator 9 to produce a reference phase command θd^* which is a phase reference of the output voltage of the inverter unit 4. Further, a uvw/dq converter 11 makes calculation of the equation (1) on the basis of output currents iu and iw of a motor current detector 10 and the reference phase command θd^* to detect an excitation current Id (equivalent of no-load current) of the inductor motor 5.

Please replace the paragraph spanning pages 6 and 7 with the following amended paragraph:

Next, a deviation of the an excitation current limitation level command Idmax* and the detected excitation current value Id is amplified by a PI (proportion and integration) controller 12 and an output of the PI controller 12 is supplied to a limiter processing unit 13. The limiter processing unit 13 processes the output of the PI controller 12 to produce a torque boost voltage compensation value ΔVc. Here, the torque boost voltage command ΔVz^* is inverted by an inverter [-1] and the inverted torque boost voltage command ΔVz^* is used as a lower limiter value of the limiter processing unit 13. The lower limiter value is varied in accordance with the primary

frequency command $\omega 1^*$ of the inverter unit 4. Further, ΔVc and ΔVz^* are added to produce a final compensated torque boost voltage command ΔVt^*. Then, ΔVt^* is added to the induced voltage command Em* to produce a q-axis voltage command Vq* of the inverter output voltage. On the other hand, a d-axis voltage command Vd* of the inverter output voltage is calculated by multiplying a rated excitation current command Id* by an equivalent of a primary resistance r1 of the motor in a primary resistance constant circuit 14. Then, a dq/uvw converter 15 is supplied with the rotating coordinate axis components Vd* and Vq* of the inverter output voltage command and produces three-phase voltage commands Vu*, Vv* and Vw* for the fixed coordinate axis. This calculation is expressed by the equation (2).

Please replace the paragraph spanning pages 9 and 10 with the following amended paragraph:

As described above, when the load is light, the final compensated torque boost voltage command ΔVt^* is reduced so that the excitation current Id is equal to the excitation current limitation level Idmax* (Id=Idmax*) and when the load is heavy, the final compensated torque boost voltage command ΔVt^* is increased conversely. Since the compensation value ΔVc is varied within the range of the boost voltage command ΔVz^* by means of the limiter processing ~~control~~ unit 13, the final compensated torque boost voltage command ΔVt^* is operated within the range of $0 \leqq \Delta Vt^* \leqq \Delta Vz^*$ to thereby prevent excessive compensation.

Please replace the paragraph on page 10, lines 5-8, with the following amended paragraph:

Operation of the embodiment is now described with reference to an

approximate equivalent circuit and voltage and current vector diagrams of the induction motor 5.

Please replace the paragraph on page 10, lines 9-17, with the following amended paragraph:

Fig. 3A illustrates a T-type equivalent circuit. r1 and r2 represent primary and secondary resistances, x2, x2 and xm represent primary and secondary leakage reactances and excitation reactance, respectively. Further, s represents slip. In the low-frequency area in which the torque boost control is required, x1≦r1 and x2≦r2/s. Accordingly, in the low-frequency area, the induction motor 5 can be approximated by the equivalent circuit of Fig. 3B.

Please replace the paragraph on page 10, lines 18-20, with the following amended paragraph:

Figs. 4A and 4B show voltage and current vector diagrams of the induction motor 5 in no load and heavy load using the approximate equivalent circuit.

Please replace the paragraph on page 12, lines 8-14, with the following amended paragraph:

Fig. 5A and 5B show characteristics of the inverter output current I1 and the inverter output voltage V1 in the case where the torque boost voltage set value ΔVz0 is increased gradually when the output frequency command of the inverter unit 4 is fixed to a low frequency and the inverter unit 4 is operated in no load in control of the embodiment.